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ROBERT J. DEPKE
LEWIS T. STEADMAN
ROCKEY, DEPKE & LYONS, LLC
SUITE 5450 SEARS TOWER
CHICAGO, IL 60606-6306

EXAMINER	
NGUYEN, LUONG TRUNG	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/517,222	TOYAMA, TAKAYUKI	
	Examiner	Art Unit	
	LUONG T. NGUYEN	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 July 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-31* is/are pending in the application.

4a) Of the above claim(s) *31* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *08 December 2004* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *12/08/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of Species I, illustrated in Figure 1, sub Species 1 illustrated in Figure 2 and Sub Species A illustrated in Figures 10A-B read on claims 1-31 in the reply filed on 7/15/2008 is acknowledged. It should be noted that the Applicant does not specifically point out the error of the Restriction Requirement as mailed on 6/12/2008, therefore the requirement is still deemed proper and is therefore made FINAL.

2. Claim 31 is withdrawn from consideration by the Examiner because of the following reason.

Claim 31 recites limitation "a row adjustment unit which obtains the image signal sequentially aligned in the direction of said row..." Figures 12A-12B, Specification, page 52 discloses "a row adjustment unit" which reads on limitation "a row adjustment unit which obtains the image signal sequentially aligned in the direction of said row...". Figures 12A-12B is a non-elected Species. Therefore, claim 31 does not read on elected Species Figures 1, 2, and 10A-10B as elected by the Applicant ob 7/15/2008. Therefore, claim 31 is withdrawn from consideration by the Examiner.

Priority

3. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Drawings

4. Figures 17, 18, 19A-19B should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

5. Claims 1-30 are objected to because of the following informalities:

Claim 1 (lines 3-4), claim 2 (lines 3-4), claim 6 (lines 3-4), claim 13 (lines 3-4), claim 26 (lines 5-6), claim 29 (lines 5-6), claim 31 (lines 4-5), "the row and the column in the two-dimensional shape" should be changed to --a row and a column in a two-dimensional shape--.

Claim 1 (lines 7-8), claim 2 (lines 7-8), claim 6 (lines 7-8), claim13 (lines 7-8), claim 31 (lines 8-9), "said photo-conductive unit" should be changed to --a photo-conductive unit--.

Claim 1 (lines 16-17), "the electric-charge" should be changed to --the signal electric-charge--.

Claim 3 (line 3), "the electric-charge transfer units" should be changed to --the column electric-charge transfer units--.

Claim 4 (line 4), "two said adjacent columns" should be changed to --two adjacent columns--.

Claim 13 (line 10), "every two of said columns" should be changed to --every two of columns--.

Claim 22 (line 5), claim 23 (line 5), claim 24 (line 5), claim 25 (line 5), "said plurality of columns" should be changed to --a plurality of columns--.

Claim 26 (line 2), "a solid state image sensor" should be changed to --the solid state image sensor--.

Claim 28 (line 3), "said signal electric-charge" should be changed to --said signal electric-charge,--.

Claim 29 (lines 3-4), "the signal electric-charge" should be changed to –a signal electric-charge--.

Claim 29 (line 4), "the photo-conductive units" should be changed to --a photo-conductive unit--.

Claims 7, 10, 14, 18, 22 are objected as being dependent on claim 1.

Claims 3-5, 8, 11, 15, 19, 23 are objected as being dependent on claim 2.

Claims 9, 12, 16, 20, 24 are objected as being dependent on claim 6.

Claims 17, 21, 25 are objected as being dependent on claim 13.

Claims 27-28 are objected as being dependent on claim 26.

Claims 30 is objected as being dependent on claim 29.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 7, 8, 9, each recites the limitation "a selective gate, which is shared with said plurality of adjacent columns, for reading out said signal electric-charge on the input side of said signal electric-charge." It is not known where is *the input side* of signal electric-charge since "signal electric-charge" is only a signal charge reading out from a photo-conductive unit; the signal charge can not have "input side".

Claims 10, 11, 12, each recites the limitation "a wiring to said selective gate is shared with the wiring to said selective gate." It is not known how "a wiring to said selective gate is shared with the wiring to said selective gate (i.e., itself)."

Claim 13, recites the limitation "a selective gate which is provided independently for each of said two adjacent columns for reading out said signal electric-charge on the input side of said signal electric-charge." It is not known where is *the input side* of signal electric-charge since "signal electric-charge" is only a signal charge reading out from a photo-conductive unit; the signal charge can not have "input side".

Claim 26 recites limitation "a drive method of a solid state image sensor," this indicates that claim 26 is a method claim, however, there are no steps of the method recited in claim 26.

Claim 29 recites limitation "an image pick-up method," this indicates that claim 29 is a method claim, however, there are no steps of the method recited in claim 29.

Claim 1 (line 10) recites the limitation "said" in "said adjacent columns".

Claim 2 (line 10) recites the limitation "said" in "said adjacent columns".

Claim 5 (line 4) recites the limitation "said" in "said electric-charge transfer".

Claim 6 (line 10) recites the limitation "said" in "said adjacent columns".

Claim 7 (line 4) recites the limitation "said" in "said plurality of adjacent columns".

Claim 10 (line 3), recites the limitation "said" in "said selective gate".

Claim 10 (line 4), recites the limitation "said" in "said selective gate".

Claim 10 (lines 4-5), recites the limitation "said" in "said electric-charge detection units".

Claim 11 (line 3), recites the limitation "said" in "said selective gate".

Claim 11 (line 4), recites the limitation "said" in "said selective gate".

Claim 11 (lines 4-5), recites the limitation "said" in "said electric-charge detection units".

Claim 12 (line 3), recites the limitation "said" in "said selective gate".

Claim 12 (line 4), recites the limitation "said" in "said selective gate".

Claim 12 (lines 4-5), recites the limitation "said" in "said electric-charge detection units".

Claim 13 (lines 10-11) recites the limitation "said" in "said signal electric-charges".

Claim 13 (lines 14-15) recites the limitation "said" in "said two adjacent columns".

Claim 14 (line 3), claim 15 (line 3), claim 16 (line 3), claim 17 (line 3), recites the limitation "said" in "said electric-charge detection units".

Claim 26 (line 8) recites the limitation "said" in "said adjacent columns".

Claim 29 (line 8) recites the limitation "said" in "said adjacent columns".

There are insufficient antecedent basis for these limitations in the claims.

Claims 7, 10, 14, 18, 22 are rejected as being dependent on claim 1.

Claims 3-5, 8, 11, 15, 19, 23 are rejected as being dependent on claim 2.

Claims 9, 12, 16, 20, 24 are rejected as being dependent on claim 6.

Claims 17, 21, 25 are rejected as being dependent on claim 13.

Claims 27-28 are rejected as being dependent on claim 26.

Claims 30 is rejected as being dependent on claim 29.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4, 6, 14-16, 18-20, 22-24, 26, 28-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Morimoto (US 5,969,759).

Regarding claim 1, Morimoto discloses a solid state image sensor comprising:

a plurality of photo-conductive units (plurality of photodiodes 101-1, figure 3, column 5, lines 10-22) which are arranged in each direction of the row and the column in the two-dimensional shape and which obtain a signal electric-charge by receiving light;

a column electric-charge transfer unit (vertical CCD registers 101-3, figure 3, column 5, lines 10-22) which transfers said signal electric-charge obtained by said photo-conductive unit in the direction of said column; and

an electric-charge detection unit (output sections 103a to 103d, figure 3, column 5, lines 10-22) which is provided for every plurality of said adjacent columns and which converts said signal electric-charge transferred by said column electric-charge transfer unit into a pixel signal;

wherein with respect to said plurality of adjacent columns, when said signal electric-charge obtained by said photo-conductive unit at the same position in the direction of said row reaches said electric-charge detection unit, a phase of the electric-charge transfer is made different (the horizontal transfer electrodes of the solid state image sensing device in Figure 3 are drive by 2 phase pulses, column 5, line 39 – column 6, line 34).

Regarding claim 2, Morimoto discloses a solid state image sensor comprising:

a plurality of photo conductive units (plurality of photodiodes 101-1, figure 3, column 5, lines 10-22) which are arranged in each direction of the row and the column in the two-dimensional shape and which obtain a signal electric-charge by receiving light;

a column electric-charge transfer unit (vertical CCD registers 101-3, figure 3, column 5, lines 10-22) which transfers said signal electric-charge obtained by said photo conductive unit in the direction of said column;

an electric-charge detection unit (output sections 103a to 103d, figure 3, column 5, lines 10-22) which is provided for every plurality of said adjacent columns and which converts said signal electric-charge transferred by said column electric-charge transfer unit into a pixel signal; and

a dummy electric-charge transfer unit (dummy vertical transfer sections 104b to 104d, figure 3, column 5, lines 10-38) arranged between said column electric-charge transfer unit and said electric-charge detection unit, in which the number of stages of electric-charge transfer is different with respect to each of said plurality of columns (column 5, lines 23-38; column 6, lines 1-34).

Regarding claim 3, Morimoto discloses wherein in the electric-charge transfer units of said plurality of adjacent columns, an electrode used for the vertical transfer drive is used in common (vertical transfer electrodes, figure 2A, column 2, lines 1-30).

Regarding claim 4, Morimoto discloses wherein said electric-charge detection unit is provided for every two said adjacent columns (each output section 1031, 103b, 103c, 103d is provided for two adjacent columns, Figure 3).

Regarding claim 6, Morimoto discloses a solid state image sensor comprising:

a plurality of photo-conductive units (plurality of photodiodes 101-1, figure 3, column 5, lines 10-22) which are arranged in each direction of the row and the column in the two-dimensional shape and which obtain a signal electric-charge by receiving light;

a column electric-charge transfer unit (vertical CCD registers 101-3, figure 3, column 5, lines 10-22) which transfers said signal electric-charge obtained by said photo-conductive unit in the direction of said column; and

an electric-charge detection unit (output sections 103a to 103d, figure 3, column 5, lines 10-22) which is provided for every plurality of said adjacent columns and which converts said signal electric-charge transferred by said column electric-charge transfer unit into a pixel signal;

an electrode used for driving a vertical transfer is formed such that a phase of electric-charge transfer when said signal electric-charge obtained by said photo-conductive unit at the same position in the direction of said row reaches said electric-charge detection unit is different, when a common vertical transfer control signal is applied to said plurality of adjacent columns (figure 3, column 5, line 39 – column 6, line 34).

Regarding claims 14, 15, 16, Morimoto discloses each of said electric-charge detection units includes a reset gate in said electric-charge detection unit to be initialized after said signal electric-charge is converted into said pixel signal (reset gate electrode 20, figure 2A, column 2, lines 1-31).

Regarding claims 18, 19, 20, Morimoto discloses wherein a differential detection unit (amplifier 23, figure 2A, column 2, lines 1-31) which detects the difference between the output without said signal electric-charge and the signal level with said signal electric-charge, of said pixel signal, is provided subsequently to said electric-charge detection unit.

Regarding claims 22, 23, 24, Morimoto discloses:

a plurality of said electric-charge detection units with respect to said plurality of adjacent columns in the direction of said column with said plurality of columns as a group (output sections 103a, 103b, 103c, 103d, figure 3),

a horizontal scanning unit (horizontal registers 102a, 102b, 102c, 102d, figure 3) subsequent to said plurality of electric-charge detection units, which sequentially selects and outputs said pixel signal that is output from each of said plurality of electric-charge detection units in time series in the direction of said row.

Regarding claim 26, all the limitations are contained in claim 1, therefore, see Examiner's comments regarding claim 1.

Regarding claim 28, Morimoto discloses wherein said electric-charge detection unit includes on the input side of said signal electric-charge (figure 2A),

a selective gate (output gate electrode 18, figure 2A, column 2, lines 1-31) for reading out said signal electric-charge, and

a reset gate (reset gate electrode 20, figure 2A, column 2, lines 1-31) for initializing after said signal electric-charge is converted into said pixel signal, and said reset gate is made to turn on when said selective gate is off.

Regarding claim 29, see Examiner's comments regarding claim 26.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. Claims 27 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Morimoto (US 5,969,759) in view of Nakano et al. (US 6,765,616).

Regarding claims 27 and 30, Morimoto fails to specifically discloses wherein said column electric-charge transfer unit is driven by six-phase drive. However, Nakano et la. Teaches an electric camera, in which a vertical transfer unit 32 which is driven by six phase pulses V1, V2, V3, V4, V5, V6 (figure 10, column 13, lines 1-5). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the

device in Morimoto by the teaching o Nakano et al. in order to obtain a solid state image sensor which provides increased dynamic range and improved image quality.

Allowable Subject Matter

12. Claim 13 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

The following is a statement of reasons for the indication of allowable subject matter: /.

Regarding claim 13, the prior art of the record fails to show or fairly suggest a solid state image sensor comprising said electric-charge detection unit includes a selective gate which is provided independently for each of said two adjacent columns for reading out said signal electric-charge on the input side of said signal electric-charge.

Claims 17, 21, 25 are allowable for the reasons given in claim 13.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUONG T. NGUYEN whose telephone number is (571)272-7315. The examiner can normally be reached on 7:30AM - 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DAVID L. OMETZ can be reached on (571) 272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

LTN
01/19/09

/LUONG T NGUYEN/
Examiner, Art Unit 2622